

University of Groningen

Surgery and oral hygiene on artificial peridontal defects in beagle dogs. A clinical, radiographical and histological investigation

Dijk, Lolke Johan van

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

1979

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Dijk, L. J. V. (1979). *Surgery and oral hygiene on artificial peridontal defects in beagle dogs. A clinical, radiographical and histological investigation.* s.n.

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

on objectives of the
sections 7.2.1. - 7.2.6..
drawing general conclusions:

giene, is not an
se. There are indications
ting tissues.

sults in a distinct
s are obtained. But the
s questionable when

factor in periodontal
dually disappear when
he maturation of the
er surgery, may be an

tely a positive effect on
pears, probing depths
Whenever the choice
thout proper control of
initely be on oral

l, radiographical and
entially in accordance
an (1975), Ramfjord et al
) and Axelsson & Lindhe

el are observed, the
reatment in human.

SUMMARY.

Surgical treatment of periodontal disease is a generally accepted and frequently applied method. There is, however, still no agreement regarding the long term results of such a treatment.

Plaque control is accepted as an essential part of periodontal treatment. However, in most studies evaluating periodontal surgical treatment, the role of oral hygiene has not been differentiated properly. The aim of the present investigation was to evaluate the effect of periodontal surgery with and without daily tooth brushing and of daily tooth brushing alone on artificial periodontal defects in beagle dogs. The surgical treatment consisted of replaced mucoperiosteal flap procedures with recontouring of alveolar bone.

Beagle dogs have been chosen as experimental animals, since it is known that the beagle periodontium reacts quite similar to human periodontium regarding bacterial plaque in corresponding situations of health and disease. Furthermore, beagle dogs are easy to handle, allowing daily tooth brushing.

Artificial periodontal defects have been created by placing copper bands around the second, third and fourth premolars of the lower jaw, following intrasulcular incisions. A soft diet allowed accumulation of bacterial plaque. After three weeks, the bands were replaced by cotton ligatures. Eleven weeks later the cotton ligatures were removed.

One week after the formation of the artificial defects, one side of the lower jaw in all dogs was surgically treated by means of mucoperiosteal flaps and osseous recontouring. The other side of the lower jaw served as the control side. In seven dogs all teeth were cleaned daily with a toothbrush, six dogs were refrained from any oral hygiene. All dogs were scaled and polished twice yearly.

To evaluate the experimental model and the artificial defects, registrations were made at the control sides of the non-brushed dogs. One week after formation of the defects, the gingiva was profoundly inflamed. Probing depths obtained average values of 4.5 millimeter. Variations in depth were minimal, suggesting that artificial defects can be produced with accuracy. Alveolar bone was significantly reduced and revealed a horizontal type of bone loss. Histologically, the defects exhibited features indetical to normal occurring periodontal lesions.

Within the two years of evaluation, the artificial defect changed from an acute lesion into a more chronic lesion. Furthermore, it revealed distinct regeneration tendencies.

But assuming that this phenomenon occurred proportionally in all groups, differences between experimental and control groups are still possible to recognize. Conclusions can be drawn accordingly.

From the clinical, radiographical and histological results, it can be concluded that:

In beagle dogs with artificial periodontal defects,

1. Periodontal surgery, when not combined with oral hygiene, is not an effective method of treatment of periodontal disease. There are indications that such an approach is even harmful to the supporting tissues.
2. Periodontal surgery combined with oral hygiene, results in a distinct improvement of periodontal health as stable results are obtained. But the benefit of surgery supplemental to oral hygiene, is questionable when probing depths are less than five millimeters.
3. Oral hygiene is not a supplemental, but a decisive factor in periodontal treatment. Results of periodontal surgery gradually disappear when oral hygiene is not maintained. The finding that the maturation of the periodontal tissues is not completed two years after surgery, may be an explanation.
4. Oral hygiene without further treatment, has definitely a positive effect on the health of the periodontium: Inflammation disappears, probing depths will be reduced and bone formation is stimulated. Whenever the choice between stimulation of oral hygiene and surgery without proper control of oral hygiene has to be made, the decision must definitely be on oral hygiene.

The conclusions of this clinical, radiographical and histological investigation in beagle dogs are essentially in accordance with recent clinical studies in human. As long as the limitations of the experimental model are observed, the presented conclusions are applicable to periodontal treatment in human.

SAMENVATTING.

Chirurgische behaar-
vaarde en veelvuldig
over de resultaten op
langrijk onderdeel va
resultaat van parodon
registreerd.

Het doel van de on-
taat van parodontale
borstelen. Het experi
in het parodontaal st
mucoperiostale chirur

Beagle honden werd
bij de mens reageert
van gezondheid en zie
tanden te borstelen.

Bij 13 beagle hond
van 14 weken kunstmat
jes en katoendraadjes
met het zachte dieet
ernstige ontsteking v
werd vervolgens enkel
bij 7 honden werd het
Bij 6 honden werd nie
tandsteen verwijderd

Ten einde het exp
bij de controle zijde
van de defecten was
droegen gemiddeld 4,
hetgeen betekent dat
Het alveolaire bot w
merken van de normaa

Het kunstmatige c
jaar van een acute l
tendensen tot regene
schijnsel in alle g
controle groepen wa